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ABSTRACT

A study examined the composing processes of eight college freshman writers and the contexts for their writing when they composed in natural settings without narrow time constraints. Subjects, both traditional freshmen and adult learners with varying degrees of writing skill, were assigned two research tasks during which they kept tape-recordings and logs of their composing sessions and processes, as well as all their written products. The first task was a carefully subdivided persuasive writing assignment, while the second task was a "free choice" assignment for which students had to invent the writing problem as well as its solution. The results indicated that students varied considerably in the frequency of their composing sessions, and that time was the single most important external factor affecting students' composing processes. The recursive nature of the composing process was supported by the results. Most subjects were capable of successfully drafting short papers without having any written plan for their drafts, suggesting that traditional "outlining " methods are simply not necessary. The persuasive task elicited more varied process strategies for generating ideas, engaging students in use of analogy, conditional argumentation, hypothetical scripts, and other imaginative strategies. Students generated more ideas at all levels for the problem paper, and also more written plans; despite this, however, final drafts of these papers were an average of six sentences shorter, suggesting that translating ideas into words was harder for the persuasive task. The results have implications for teachers that involve the need to set up supportive writing environments and to establish instructional objectives and make assignments that draw on students' own experience. Implications for the direction of writing research in the areas of composing contexts, composing processes, and task variables are also discussed. (HTH)

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An Analysis of the Predrafting Composing Processes of Eight College Students and The Natural Contexts For Their Writing

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AN ANALYSIS OF THE PREDRAFTING COMPOSING PROCESSES OF EIGHT COLLEGE STUDENTS AND THE NATURAL CONTEXTS FOR THEIR WRITING

ABSTRACT

This paper presents the pertinent findings from a study of the composing processes of eight college students as they responded to two academic assignments in their natural settings over a month's time. The first part summarizes the purposes of the original study, the kinds of data collected, and the research methods employed. The second part presents a scheme and procedure for coding composing processes in naturalistic settings, and the third section presents a condensed version of the findings in three areas: composing contexts, composing processes, and variations in composing processes by task. Implications for pedagogy and further research are also discussed.

PURPOSES OF THE STUDY

This research addressed two related questions: (1) What were the composing processes of eight college writers while they responded to two different assignments during "predrafting," the time beginning with their receipt of the assignments and ending with their completion of rough drafts? And (2), what were the contexts for their writing when they composed in natural settings without narrow time constraints?

This study differed from previous composing process research in that writers were allowed to compose normally in their natural

settings over a month's time while responding to two tasks which were part of requirements for a first-year college communications course. The writing assignments consisted of a highly structured persuasive task and a "free choice" assignment where students could write on anything they pleased. In contrast to earlier definitions of "predrafting" as a single composing process which ends when the writer begins to translate thoughts into written words, in this study "predrafting" was defined as the time period that begins with the assignment of a writing task and extends up to and through the production of a first "good" draft. This definition presumes that "drafting" does not necessarily result in papers that satisfy the writer with respect to topic choice, purpose, audience, and other rhetorical concerns.

Research on composing processes has to date focused primarily on the activities that occur during drafting (transcribing) and revising. Emig's (1971) research was useful in roughly mapping the territory of drafting, and others such as Bridwell (1980) and Faigley and Witte (1981) laid equally important groundwork in the study of revisions to existing texts. One of the first to pay attention to composing processes during the time before drafting was Crowley, whose informal (1977) study of students composing in natural settings and keeping composition diaries suggested that students did little to prepare for academic writing, and that such writing lacked commitment. Her conclusions about "prewriting" processes were bolstered by the more formal studies of Pianko (1979) and Perl (1979); however, because these studies and others

like them were conducted under laboratory conditions, within limited time frames, they were said to have "truncated" crucial aspects of composing (Bridwell, 1980; Pianko, 1979a). In those case studies, writers were shown to spend little time before writing, from an average of 1.26 minutes (Pianko, 1979) to 4 minutes (Perl, 1979). Contrasting starkly with those findings are those of Berkenkotter's (1983) case study of one professional writer's composing in natural contexts, where "planning" activities dominated his composing. Selfe's (1981, 1984) study was also laboratory based, but her report on "predrafting" behaviors revealed that, like Berkenkotter's professional writer, students employed rich and varied composing processes during the predrafting time.

This study was intended to extend the scope of former research by taking a holistic and naturalistic approach to composing. It used relatively unobtrusive research techniques for collecting data in natural settings, (see Ericsson and Simon's (1984) review of the technique of protocol analysis), and proposes procedures for analyzing protocols which are collected naturalistically. Moreover, the research tasks were assigned as part of the usual requirements for a college English course with an integrated literature/writing curriculum, and all students, including the research subjects, received instruction in the usual manner. The research took place within a regular classroom context where students were receiving instruction on their writing which included individual conferences, multiple revisions of

drafts, discussions and readings on composing processes, peer reviews, and sentence combining. Ultimately, students' final papers were graded, and, although this could not guarantee "commitment," a feature earlier studies were said to lack, the procedure was compatible with the naturalistic research design.

DESIGN OF THE STUDY

The research design had the following steps: (a) selection and orientation of research subjects (b) assignment of writing tasks (c) data gathering (d) follow-up interviews, and (e) data analysis. The data were gathered during fall and spring semesters of 1984-85 at a four-year private liberal arts and professional training college in upstate New York. Students were selected for the study on the basis of three criteria: their enrollment in a first-year English class taught by the researcher/teacher, their willingness to participate, and their ability to be reliable informants. I also attempted to obtain subjects whose writing abilities were diverse: the final eight subjects included three "excellent" writers, three "very good" writers, one "average" writer, and one "below average" writer. Writing ability was determined from my evaluation of students' writing folders containing two papers prepared during the first month of class. By chance, half the subjects were traditional 18- and 19-year-olds, and half were adult learners over age 25.

Subjects were assigned the two research tasks along with their classmates, and over a month's time they kept tape-recordings and

logs of their composing sessions and processes, as well as all their written products. The research tasks represented two relative extremes of academic assignments: Task A was a carefully subdivided persuasive writing task entitled, "A Problem Confronting College Students," and Task B was a "free choice" assignment where students had to invent the writing problem as well as its solution. I wanted to see if the structure and purpose of the tasks elicited different composing processes from my subjects.

DATA ANALYSIS

My findings were based on data from many sources, including self-reported logs and tape-recordings, follow-up interviews, subjects' analyses of their own tape-recorded protocols and logs, written products, and my own records of classroom activities and conferences. The data were studied carefully and then discussed in detail in seven case study summaries and one in-depth case analysis for each task. This paper will present the coding scheme and procedure for analysis which evolved from the naturalistic data, and then it will summarize the results of the analyses.

The Coding Scheme

Flower and Hayes' (1977, 1981) theory of cognitive processes in writing, based on a cognitive psychology theory of problem-solving, identifies a number of recursive sub-processes of composing. Cynthia Selfe (1981) adapted Flower's 1979 model of

composing processes by incorporating other composing behaviors identified by Perl (1979), Nold (1979), Sommers (1980) and adding her own categories to create a coding schema for composing behaviors which she used for protocol analysis. Although designed for use under laboratory conditions, Selfe's scheme did not require use of a "time-line continuum" (Perl, 1979), and therefore lent itself to analysis of subjects' self-reported data which sometimes contains time gaps or only rough approximations of time spent on various composing activities.

During a pilot study I discovered that a whole set of behaviors, which I came to call "Process Planning," (and which Berkenkotter also found in her 1983 study), was not included in Selfe's taxonomy. Subsequently, based on the data gathered during this research, I added, rearranged, and deleted behaviors from Selfe's original coding schema; my analysis was also a process of discovering a code. I added a category called "Problem Representation," a second called "Process Planning," and further refined a "Reviewing" class of behaviors by distinguishing between objects of assessment: content, process, self, product, and world. Behaviors in Selfe's "Miscellaneous" category were either redistributed to new categories or deleted because they were not observable in the naturalistic data. In addition, I deleted the "Editing" processes Selfe had included because I found them to be an oversimplification of revision processes. To code revisions appropriately, I substituted the system of Faigley and Witte (1981) because my subjects (like Berkenkotter's professional

writer) did vast amounts of revision before they completed their rough drafts.

The following coding scheme, when combined with Faigley and Witte's (1981) system for coding revisions, represents as complete a taxonomy of predrafting composing processes in naturalistic settings as I could discover from the data of students composing within an academic context. Undoubtedly, other composing processes and strategies will yet be discovered as writers of all ages and abilities compose for different purposes in varied settings. Because each coding symbol identifies behaviors simultaneously by major sub-process and by strategy for achieving that process, the scheme provides a way of determining how parts of the process relate to the whole, while also revealing the relationship of goals and strategies for achieving them. Since it is not dependent on precise "clocking" of behaviors, it allows for coding of diverse data such as log entries, interview responses, and tape-recorded protocols. The scheme's chief drawback is that it does not allow the researcher to identify <u>amounts of time</u> devoted to particular activities; however, the value of knowing the quantity of seconds or hours spent on particular behaviors seems less important at the present time than knowing what kinds of behaviors actually occur outside controlled environments.

CODING SCHEME (THIS STUDY, 1985)

I. Problem Representation

Code	Behavior	Source
Rass	Referring to the assignment t, task; p, product	Selfe/ This Study
Div	Dividing the problem into sub-problems	This Study
PA	Planning for audience; projecting a reader x, express self; t, tone	Nold This Study
PF	Planning a format	This Study

II. Process Planning Behaviors (Planning to Do): All Activities are Preceded by the Code "Gl", meaning "Goal"

Code	Behavior	Source
Glc	Planning contexts for composing (pl, ti, c) place, time, conditions	This Study
Gld	Planning to gather data (r,t,w,re,o,l) read, talk, write, remember, observe, listen	This Study
Glg	Planning to generate q, question, c, contrast, s, speculate (i, imagine)	This Study
Gli	Planning to incubate (rest)	This Study
Glm	Planning to make meaning (make sense,clarify)	This Study
Glo	Planning to organize or classify data	This Study
Glr	Planning to review (thoughts, notes, prefiguring)	This Study
Glrvs	Planning to revise or edit existing text	This Study
Glw	Planning to write	This Study

III. Content Planning Behaviors (Planning to Say): All Behaviors Are Preceded by the Code "G," "General," or "L", "Local"

Code	Behavior	Source
GP	General planning; identifying possible topics	Perl
GP1	Identifying idea as possible noted ideas	Flower
GP2	Ordering with respect to previously noted ideas	Flower
GP3	Searching for ideas to subordinate under the current idea	Flower
GP4	Searching for superordinate ideas	Flower

LP	Local planning: deciding what comes next	Perl
LP1	Identifying idea as possible first or last topic on a local level	Flower
LP2	Ordering an idea with respect to previously noted ideas on a local level	Flower
LP3	Searching for ideas to subordinate under current idea on a local level	Flower
LP4	Searching for superordinate ideas (at at the GP level)	Flower

III. Translating Behaviors

Code	Behavior	Source
Tcs	Using two or more propositions to construct a sentence	Flower
Trp	Retrieving propositions from long or short term memory	Flower
Trw	Retrieving words from long or short short term memory	Flower
W	Writing	This Study

IV. Reviewing Behaviors

Code	Behavior	Source
Ac+,-	Assessing content (words, phrases, sentences, thoughts) positively or negatively	Perl Selfe/ This Study
Apr+,-	Assessing process plans positively or negatively	This Study
As+,-	Assessing self (abilities, mood) positively or negatively	This Study
Ap+,-	Assessing one's writing products positively or negatively	This Study
Aw+,-	Assessing one's world (contexts, data sources) positively or negatively	This Study
C	Commenting	Perl
If+,-	Projecting ideas into the future, or conditional, so as to evaluate	This Study
Q	Asking a question of oneself to evaluate	This Study
R	Reading writing (aloud or silently)	Perl/ This Study
Rao	Reviewing arrangement or organization	Selfe
Re	Restatement of words, ideas	Perl
Rep	Reviewing for ease of processing (for writer) rhetorical effect (on reader)	Nold
RIvs.t	Reviewing for intended meaning vs. text meaning	Nold

Rpl	Reviewing planning, reconsidering planning (with no evaluation)	Selfe
Rvse	Talking about having made textual changes	This Study

Protocol Analysis

The procedure I employed to code protocols had the following steps: (a) transcribing tape-recordings and interviews, (b) dating and numbering composing sessions (both logs and tapes) (c) transcribing, dating and numbering written products, (d) establishing reliability checks, (e) coding the raw data, and (f) compiling tables of the frequency and percentage of total coded lines of composing sub-processes in each session, and then for all sessions for each subject and task.

All taped protocols were first transcribed by breath groups into numbered lines of typed text, a method for transcribing oral language commonly employed in linguistic research. "Sessions" were assigned chronological numbers and letters (A or B, identifying the task), based on dates and times reported by subjects on tapes and in logs. During follow-up interviews students divided and classified their transcribed data and their log entries, using a self-disclosure ethnographic method, and as another reliability check, I trained a doctoral candidate in English Education at a state university to use my scheme. She independently coded my subjects' composing processes, and we conferred on all coded lines where we disagreed. In the course of the analysis, many lines of protocol revealed that composing behaviors often occurred simultaneously, so I developed a system of listing many types of composing behaviors for every taped or

logged line or set of lines. To produce analyses which mirrored the richness of composing processes I observed, I developed a data sheet with columns for the five major sub-processes of composing. (An example of a page of coded protocol appears in the Appendix.) In order to represent the relative number of lines for each sub-process for each subject, I totaled up the number of lines for all coded processes, including lines which were attributed to several simultaneous processes, to arrive at a grand total of lines of coded processes, and from that I calculated the percentage of the whole each separately coded sub-process represented. This enabled me to make comparisons among sessions for each subject and among subjects for each task, and to present them in tabular form.

FINDINGS

My analysis of the data I collected during the research month produced many findings. This last section presents those findings in three areas: composing contexts, composing processes, and task variations in composing processes.

Composing Contexts

The total number of composing sessions per student ranged from a low of 7 to a high of 31 (for both tasks), and the average number of sessions was 15 per student during the research month. Students varied considerably in the frequency of their composing sessions, with those who were less confident of their writing

ability and with those having more time available for writing composing more frequently. This finding suggests a positive answer to the question raised by McCarthy, Meier and Rinderer (1985) as to whether students' perception of their writing skills ("self-efficacy") changes their composing processes. Students displayed patterns of composing which persisted for both tasks: they could be classified as "marathon" or "intermittent" composers, as "simultaneous" or "serial" composers, and as "early starters" or "delayers." Morning hours (6 a.m. to noon) were the favorite time for composing, although students composed around the clock, choosing quiet places like their rooms or the library for drafting, and other places for generating topics, gathering data and conferring. Forty-three percent of their composing sessions occurred at school. Students varied a great deal with respect to their social interaction related to their composing, and those who interacted most with persons other than the teacher said they enjoyed their writing more.

Time was the single most important external factor affecting student's composing processes, and the paper begun first during the month received a higher evaluation in all eight cases. All but one student had begun composing both papers by the eleventh day of the month. Students reported that time affected their topic choices, their decision to submit drafts to revise, and the quality of their editing. Students who ran out of time produced abbreviated texts which lacked full elaboration, a form of "semantic abbreviation" (Collins and Williamson, 1981), because

they did not have time to further refine their ideas into explicit written text, although they often expressed rich content plans during follow-up interviews. One anxious but excellent writer who was the subject of the free choice task in-depth case study kept a precise log of time spent during the month on her writing. Her 31 "marathon" sessions produced over 32 hours devoted to the writing tasks during the month. Five of my eights subjects were employed, and the four who reported being most affected by time reported working from 15 to 70 hours a week. Two of those students were enrolled in six college courses, and one who took "only" three courses worked 48 to 70 hours weekly during the research month. Both subjects who were rated "average" and "below average" writers before the research complained of time pressure.

Predrafting Composing Processes.

In general, Flower and Hayes' argument for the recursiveness of composing processes (1977, 1981) was supported by my findings. That is, the major sub-processes they identified, problem representation, process planning, content planning, translating, and reviewing, occurred repeatedly throughout the composing time period I studied, predrafting. "Problem Representation" was evident in an average of 15% of students' total coded lines for both tasks. "Process Planning" appeared in an average of 34% of students' total coded lines, and "Content Planning" comprised, on average, 22% of total coded lines for both tasks. "Translating" was coded in 3% of their total coded lines, and "Reviewing" in 25%

of their total coded lines. "Process Plans" seemed to dominate students' composing during the predrafting time period, with "Content Planning" and "Reviewing" each getting about one-fourth of the writers' attention. "Translating" occurred in only 3% of their coded lines, a finding which was probably the result of the method of data gathering, rather than a paucity of "Translating," for my subjects most frequently did not tape-record their thoughts during actual writing. Rather, they recorded and logged before and after writing sessions. The two subjects who did record during writing had much higher translating percentages, 11% and 15%. Table 1 is a master table showing a comparison of the percentages of total coded lines by major sub-process, per task for each subject.

Insert Table 1 About Here

The data show that representing the problem to oneself is a highly individual behavior, and students who misrepresented the tasks to themselves often ran into major difficulties composing. Students wrote for various audiences ranging from the self to "everybody," although two of the 19-year-olds did not recognize

themselves as legitimate audiences for their own writing.

The most frequently coded "Process Plan" was "Gathering Data," especially by using memory (GLd-re). When subjects used their memories, they frequently recalled "scripts," sequentially organized events rich in imagery. The data also showed that students did employ many of the prewriting strategies urged by researchers and textbooks, although they could not label them, suggesting that students would better profit from working with their own writing to understand their own cognitive processes, rather than from textbook models. Students who attempted to be "creative" often required mental effort combined with rest in order to discover topics.

An important aspect of "Content Planning" was students' generating superordinate ideas for their topics as they explored their problem space (Hayes, 1981). As they translated ideas into words, students tended to lose the flexibility to move both ways on the scale of abstraction, and turned their attention to subordinate and local level ideas only. During predrafting, most students did not order their ideas sequentially (number them), although the structured assignment produced writing that corresponded to its three-part organization. Students reported that choosing a topic was a very difficult part of their composing of both tasks, but many found topic ideas in their writing folders.

In ten of 16 cases, students began drafting without having previously written a word on the topic. Outlines and notes were

uncommon among my subjects. The conclusion is that most of my subjects were capable of successfully drafting short papers without having any written plan for their drafts, and that traditional "outlining" methods are simply not necessary. This finding supports Perl's (1979) findings about the "prewriting" behaviors of "basic writers," and bolsters Pianko's (1979) contention that teachers should focus not on traditional outlines, but on "the first writing as a working draft which can be added to, subtracted from, and/or totally reorganized" (p. 20).

Students reviewed and revised extensively during predrafting. Reviewing fell into three clusters: positive, negative, and neutral assessments of their content, contexts, composing processes and products, and self. The effect of a student's mood on reviewing seemed profound. Emotional turmoil interfered with their choosing topics, and frustration during composing elicited distorted assessments of themselves and their products, or increased their neutral assessments so that they seemed unable to evaluate. Evidence suggests that negative assessments are essential to good composing. Although revision analysis was not included for all subjects in this research, the data suggest that revision is a process which is greatest in both frequency and kind during the predrafting time period, and which decreases as the writer's meaning becomes clearer. The ratio of negative, positive, and neutral assessments varied between adult learners and 19-year-olds, with adults' evaluations more balanced and consistent for both tasks.

These findings corroborate Berkenkotter's (1983) findings of one expert writer's composing processes. Although she divided composing into four sub-processes, planning, evaluating, revising, and editing, she found that her published writer devoted 35-45 percent of his activities to planning, 18-21 percent to evaluating, 0-3 percent to revising, and 20 to 47 percent to editing. My subjects' total "planning," including both "Process" and "Content Planning," made up a total of 48 percent to 65 percent of their total coded behaviors for Task B and Task A, respectively, and "Reviewing" (similar to Berkenkotter's "evaluating") made up 19 to 30 percent of coded behaviors for Task A and Task B, respectively. The differences in percentages could be explained by the fact that my study ended with the subjects' completion of a "good" draft, whereas her study followed composing through to the final draft; or, it could be explained by the differences between an expert writer and "novices," or by differences in our coding schemes. However, like Berkenkotter, I found my students using many kinds of composing behaviors that had previously not been elicited under controlled conditions, and I also observed the "reconceiving" behaviors she noted (p. 162), which involved students in interweaving process and content plans with evaluative reviewing behaviors.

Composing Processes: Task Differences

The structured persuasive task and the free choice assignments elicited different patterns of composing sub-processes

and kinds of composing strategies. The persuasive task elicited more varied process strategies for generating ideas, engaging students in use of analogy, conditional argumentation, hypothetical scripts, and other imaginative strategies. Students generated more ideas at all levels for the problem paper, although their average number of topic level choices for each task was the same, 2.5. Although students produced more written plans for the problem paper, final drafts of those papers were an average of six sentences shorter, suggesting that translating ideas into words was harder for the persuasive task.

Problem representation was coded twice as frequently for the free choice task, and most of the students said it was the harder task. Students were more sensitive to composing contexts for the free choice task, with such factors as privacy and mood being referred to more often. At the same time, students more frequently stated their intentions to write while composing the free choice paper, suggesting that they had to be more self-directing for that task. Students wrote for themselves as audience more for the free choice task, and their higher percentage of reviewing processes included more positive assessments. The kinds of products elicited by the free choice task were four personal narratives (organized in complex ways), two expository essays, one persuasive essay, and one short story.

IMPLICATIONS FOR TEACHERS AND RESEARCHERS

Several major implications for teachers involved their awareness of students' needs to set up supportive writing environments and to manage the time available for writing. This study suggested that social interaction during composing may reduce the stress of problem-solving, and teachers should encourage writers to share their composing with both trusted readers and with wider audiences. In addition, teachers should allow enough time for composing, or students will produce poorly elaborated and edited texts. Those administering placement tests could improve students' writing by allowing them to come and go, increasing time limits, and providing them room to sprawl or relax, although general lack of commitment should probably be anticipated when the writing must be completed at any one sitting. My study also showed that students composing in natural settings expend more time and effort writing than teachers often credit them, and many have serious problems with time due to heavy course loads and working.

A second set of implications for teachers of writing deals with instructional objectives and assignment-making. My research suggests that teachers should attempt to get students to feel comfortable using their own experiences as sources of evidence in writing and assist them to develop appropriate tones for writing. Writing teachers can also be more effective by assisting students to develop their abilities to recall meaning-rich scripts and to use these to lend their ideas support and liveliness.

Teachers of composition must also pay careful attention to task variables if they wish to call forth a full range of composing strategies. The problem paper task was superior for producing more varied data gathering and generating strategies, while the free choice provided students with their greater enjoyment. This study supports Schwalm's (1985) findings that writing assignments vary in "degree of difficulty," but disagrees with his conclusion that "we must get beyond personal writing in order to challenge our students' linguistic skills" (634). Contrary to Schwalm's contention that "experienced-based" tasks are simpler, students cited the free choice task as the more difficult, and their products were organized more complexly than simple narrations or descriptions, as Schwalm's study suggested. Furthermore, the pleasure derived from expressive assignments appears to sustain student writers through the wearisome and often difficult research papers, essays and exam topics which prevail in academia. Ultimately, this study suggested that writing teachers should choose their assignments wisely, so that students can learn the full array of functions of written language: to communicate with others (inform and persuade), to express feelings, to solve problems, and to record personal experiences. Only then can we be sure that we are creating the learning environment that enables students to exploit language as humankind's single most powerful tool.

This study also has implications for the direction of writing research in three areas: composing contexts, composing processes,

and task variables. First, more extensive research needs to be carried out to determine the optimum contexts for students' composing so that test environments as well as classroom practices promote the best writing. In particular, the roles that time span and incubation periods play in successful composing require more examination. The relationship between the span of time students have to complete a writing assignment and their performance on the task needs to be examined carefully, since my data show that students performed better on the task they began first, not necessarily the task they spent the most time composing. Researchers could explore the optimum time periods for successful completion of different types of tasks for students of different ages and writing skills. Also, regardless of whether they planned consciously to get away from their writing in order to improve it, all subjects showed that they broke up their composing into sessions during the composing month. This behavior is a type of "distributed practice" recommended by educational psychologists as a means to improved learning which is not possible during testing and under usual research conditions. In other words, the role of incubation or "time off task" as well as the total period of time allowed for completion of the task seem to be important factors affecting students' writing performance and require further inquiry.

A second fruitful area for future research on composing contexts might be the investigation of the optimum number of tasks students of different abilities can handle at the same time, since

my study suggests that students benefit from working on two tasks simultaneously. For example, would first-year college students perform better if they were given all writing assignments at the beginning of the semester and allowed the full 15 weeks to compose?

A third implication of this study for researchers is that all composing processes and strategies in this report will need continued examination and refinement. The coding scheme I developed should lead researchers to scrutinize the system of composing processes and strategies more extensively so that we may ultimately better understand this complex problem-solving activity we call "writing." Each of the five sub-processes of composing I studied, as well as revising, should continue to be investigated with larger research populations, especially during the predrafting time period, where so little work has been done. Problem representation, especially, and the role of accurately reading the assignment are areas that have been overlooked, and my data suggest that they may be crucial to writing performance. Revisions during the production of texts (during predrafting) have yet to be studied as they occur when writers compose in natural settings. My data suggest that this may be the most overlooked area of composing process research, simply because that research has most often been conducted primarily under experimental conditions, when time and settings constraints have operated, and when, for example, writers cannot afford the luxury of a complete change of topic. Studies of writers revising at the computer (if

this is their natural composing environment) should be of enormous value in this area. Faigley and Witte's (1981) code will be useful here, although my data suggest that other categories may have to be developed for analyzing revisions to notes, outlines, and "freewriting," since they sometimes employ cryptic "key words," rather than sentences.

A fourth implication is that researchers need to investigate the role of task variables in far greater depth. Systems for determining equivalencies for tasks with respect to type of data gathering required, scope of topic and audience, generating strategies required, and time required by writers for reviewing must be developed to promote reliable measures of writing performance. Research on task variables has been very crude to date, with tasks classified according to purpose only, or to elaborated and unelaborated assignments. This study purposely attempted to examine the impact of two very different academic writing tasks, but a whole range of tasks exists in the middle of this range, as well as outside academia, which might be studied by future researchers, not only to promote better testing, but also to identify a full range of composing processes.

My final and strongest suggestion for those conducting writing research is that they continue to design studies which allow subjects to compose in their natural settings over longer spans of time than the traditional one or two hours. Composing theory is still a "toddler," and the valid data obtained through naturalistic studies are vital to its development. Collaborative

efforts between teams of cognitive psychologists, linguists, and writing researchers could foster more rapid growth of our young discipline, especially in the area of predrafting composing processes where the data provide abundant and rich insights into the workings of the mind.

Monologue of T.H. TAPE #18 TASK B

		Prob. Rep	Process	Content	Trans.	Review
2/24	It is now 11:49 Sunday February 24		Glc-ti			
	and I'm preparing to start my second paper	RASS-P	Glc-c			
3	I won't be doing my first persuasive because my subject has gone home for the weekend		Glc-c			
5	so what I'm going to be doing is either a descriptive paper of a room	RASS-T				
	which was suggested before	RASS-T				
	or perhaps another situation that touched me		Glg	GP		
	since I'm not sure what I am going to be doing I'm going to be planning		Glg	GP		
	just putting down ideas		Glg	GP		
10	just- in a disorganized manner		Glg			
	getting ideas out		Glr			
	an from their I'll try and decide what I will do			GP4		
	I hope that you are not going to get sick of reading about a lot of old people	PA				Ac+
16	but since that's what I know the best that's something that is easy for me to write about					Rep Apr+
	and I think that's the best thing to do					
2/24	It's now 1:25 and I finally finished sort of planning what I did		Glc-ti,c			
	I just wrote ideas and things that just came into mind		Glg, Gld-R		W	
20	and I finally decided what I'm going to do is describe a place			GP4		
	I'm going to describe Mary Rens room and how I f eel about it		Gld-re	GP3		
	how I ended was by		Gld-re		W	
	after I put down all the images and things I've seen					
	all the colors		Gld-R		W	
26	what I did was I gathered together some adjective					
	I used the dictionary and I got together some adjectives					
	that described the room		Glg Gldw		W	Apr+
	by writing down adjectives and thinking about them					
	this sort of helps me gain new ideas and think					C
30	I always do this when I'm writing					

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Table 1

A Comparison of the Percentage of Total Coded Lines
By Process, Per Task

	Task A					Task B				
	Processes[1]					Processes[1]				
	P	Gl	GP	Tr	R	P	Gl	GP	Tr	R
Gary	9	40.5	26	-	24	13.8	23	26.6	14.9	21
Mary	2.3	40.6	43.3	11	2.5	25.9	21	11.9	-	39.9
Rita	10	41.3	31	1	17.4	19.3	39.8	11.7	1.8	27.5
Sandy	13.5	34.3	31.7	-	20.3	13	32.6	32.3	-	21.9
Walter	6	31.4	26.4	5.4	31	32.5	30	12.7	2	22
Chris	18	35	15.7	3	28.6	17.6	28	10.6	1	42
Jacquie	4.8	42	41	-	12.4	14	29.5	25.4	-	31.1
Tracy	16	36	9.6	3.7	34.6	10.4	45	4	6	35
AVERAGE=	10	37.6	28	3	19.4	18.3	31.1	16.9	3.2	30.1

[1]Processes Key

P = Problem Representation
Gl = Process Planning
GP = Content Planning
Tr = Translating
R = Reviewing